IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Steven Maddocks et al.	§	Art Unit:	2182
		§		
Serial No.:	10/757,757	§	Confirmation No.:	4254
		§		
Filed:	January 14, 2004	§	Examiner:	Tammara R. Peyton
		§		
For:	Interface Manager and Methods of Operation in a Storage Network	§	Atty. Dkt. No.:	200315416-1 (HPC.0402US)

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF PURSUANT TO 37 C.F.R § 41.37

Sir:

The final rejection of claims 12-18, 21, 22, 24, 25, 27-33 and 35-42 is hereby appealed.

I. REAL PARTY IN INTEREST

The real party in interest is the Hewlett-Packard Development Company, LP. The Hewlett-Packard Development Company, LP, a limited partnership established under the laws of the State of Texas and having a principal place of business at 11445 Compaq Center Drive West, Houston, TX 77707, U.S.A. (hereinafter "HPDC"). HPDC is a Texas limited partnership and is a wholly-owned affiliate of Hewlett-Packard Company, a Delaware Corporation, headquartered in Palo Alto, CA. The general or managing partner of HPDC is HPQ Holdings, LLC.

II. RELATED APPEALS AND INTERFERENCES

None.

III. STATUS OF THE CLAIMS

Claims 12-18, 21, 22, 24, 25, 27-33 and 35-42 have been finally rejected and are the subject of this appeal. Claims 1-11, 19-20, 23, 26, and 34 have been cancelled.

IV. STATUS OF AMENDMENTS

No amendment after the final rejection of April 17, 2009 has been submitted. Therefore, all amendments have been entered.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The following provides a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number and to the drawings by reference characters, as required by 37 C.F.R. § 41.37(c)(1)(v). Each element of the claims is identified by a corresponding reference to the specification and drawings where applicable. Note that the citation to passages in the specification and drawings for each claim element does not imply that the limitations from the specification and drawings should be read into the corresponding claim element.

Independent claim 12 recites a method comprising:

receiving (Fig. 3:300) , by an interface manager (Fig. 1:180) in a storage system (Fig. 1:101), device information from a plurality of interface controllers (Fig. 1:170a-170c) operatively associated with storage system devices (Spec., p. 12, ¶ [0040], ln. 1-9) in the storage system, the device information relating to the storage system devices;

generating Fig. 3:310), by the interface manager, a logical map identifying at least some of the storage system devices based on the device information (Spec., p. 13, ¶ [0041], ln. 1-8);

assigning (Fig. 3:320), by the interface manager, the logical map to at least one host separate from the interface manager to enable access by the at least one host of the storage system devices (Spec., p. 13, ¶ [0042], ln. 1-5);

monitoring (Fig. 3:330) for a change in a state of the storage system devices (Spec., p. 13, ¶ [0043], ln. 1-7); and

in response to the change, modifying (Fig. 3:340, 310) the logical map (Spec., p. 14, ¶ [0043], ln. 7-12).

Independent claim 21 recites a storage network comprising:

an automated storage system (Fig. 1:101) including data access drives (Fig. 1:150a-150d) and transfer robotics (Fig. 1:160), wherein the data access drives are to access data on data storage media, and wherein the transfer robotics are to transfer data storage media in the automated storage system (Spec., p. 6, ¶ [0019], ln. 1 - ¶ [0020], ln. 5);

a plurality of interface controllers (Fig. 1:170a-170c) operatively associated with the data access drives and transfer robotics (Spec., p. 7, ¶ [0023], ln. 1-10);

an interface manager (Fig. 2:200) separate from the data access drives, the transfer robotics, and the interface controllers, the interface manager communicatively coupled to each of the plurality of interface controllers, the interface manager to generate a logical map of the automated storage system based on aggregating configuration information for the data access drives and transfer robotics, wherein the logical map is used by hosts to allow access of the data access drives and the transfer robotics by the hosts (Spec., pp. 7-8, ¶ [0025], ln. 1-10); and

a pipeline (Fig. 2:270) provided as computer readable program code in computer-readable storage at the interface manager, the pipeline including:

a command router (Fig. 2:281) to format transactions for the interface controllers (Spec., p. 10, ¶ [0034], ln. 1-5);

a management application program interface (API) (Fig. 2:282) to generate management commands for the plurality of interface controllers (Spec., p. 11, ¶ [0036], ln. 1-9); and

a device manager (Fig. 2:283) to communicate with the plurality of interface controllers (Spec., p. 11, ¶ [0037], ln. 1-6).

Independent claim 25 recites an interface manager (Fig. 2:200) for use in a storage system (Fig. 1:101), comprising:

at least a first port (Fig. 2:230a-230d) to communicate with controllers operatively associated with storage system devices of the storage system (Spec., p. 8, ¶ [0028], ln. 1-7);

at least one network port (Fig. 2:240) to communicate with a host separate from the interface manager and external to the storage system (Spec., p. 8, ¶ [0028], ln. 1-7); and

at least one control element (Fig. 2:250) to:

receive device information relating to the storage system devices from the controllers (Spec., p. 12, ¶ [0040], ln. 1-9, wherein the received device information includes at least one of numbers and types of the storage system devices operatively associated with the controllers, and capacities of the storage system devices,

generate at least one logical map based on the received device information (Spec., p. 13, ¶ [0041], ln. 1-8), and

assign the at least one logical map to the host to allow the host to access one or more of the storage system devices (Spec., p. 13, ¶ [0042], ln. 1-5).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Claims 12-17, 25, 28, 32, 33, 35, 36, and 39-41 were rejected under 35 U.S.C. § 103(a) as unpatentable over Blumenau (U.S. Patent No. 6,839,747) and Dimitroff (U.S. Patent No. 6,212,606) in view of Suzuki (U.S. Patent No. 7,003,567).[1]

B. Claims 38 and 42 were rejected under 35 U.S.C. § 103(a) as unpatentable over Blumenau, Dimitroff and further in view of Suzuki and (AAPA) Applicant's Admission of Prior Art.

C. Claims 18, 21, 22, 24, 27-31, and 37 were rejected under 35 U.S.C. § 103(a) as unpatentable over Blumenau, Dimitroff and further in view of Yung (U.S. Patent Publication No. 2004/0032430).[2]

VII. ARGUMENT

The claims do not stand or fall together. Instead, Appellant presents separate arguments for various independent and dependent claims. Each of these arguments is separately argued below and presented with separate headings and sub-headings as required by 37 C.F.R. § 41.37(c)(1)(vii).

A. Claims 12-17, 25, 28, 32, 33, 35, 36, and 39-41 were rejected under 35 U.S.C. § 103(a) as unpatentable over Blumenau (U.S. Patent No. 6,839,747) and Dimitroff (U.S. Patent No. 6,212,606) in view of Suzuki (U.S. Patent No. 7,003,567).

1. Claims 12, 14-17, 35.

It is respectfully submitted that the obviousness rejection of independent claim 12 over Blumenau, Dimitroff and Suzuki is erroneous.

---

[1] Page 2 of the 04/17/2009 Office Action incorrectly identified the following claims as being rejected under § 103 over Blumenau, Dimitroff, and Suzuki: 12-17, 25, 26, 28, 32, 34-36. Claims 26 and 34 are cancelled claims. Also, the listing omits claims 33 and 39-41.

[2] Page 9 of the 04/17/2009 Office Action incorrectly identified the following claims as being rejected under § 103 over Blumenau, Dimitroff, and Yung: 18, 21, 22, 24, 27-31, 41. The explanation accompanying the rejection referred to claim 37, and not claim 41. Claim 41 was actually rejected under § 103 over Blumenau, Dimitroff, and Suzuki.

To make a determination under 35 U.S.C. § 103, several basic factual inquiries must be performed, including determining the scope and content of the prior art, and ascertaining the differences between the prior art and the claims at issue. *Graham v. John Deere Co.,* 383 U.S. 1, 17, 148 U.S.P.Q. 459 (1965). Moreover, as held by the U.S. Supreme Court, it is important to identify a reason that would have prompted a person of ordinary skill in the art to combine reference teachings in the manner that the claimed invention does. *KSR International Co. v. Teleflex, Inc.,* 127 S. Ct. 1727, 1741, 82 U.S.P.Q.2d 1385 (2007).

Independent claim 12 recites a method comprising:

- receiving, by an interface manager in a storage system, device information from a plurality of interface controllers operatively associated with storage system devices in the storage system, the device information relating to the storage system devices;
- generating, by the interface manager, a logical map identifying at least some of the storage system devices based on the device information;
- assigning, by the interface manager, the logical map to at least one host separate from the interface manager to enable access by the at least one host of the storage system devices;
- monitoring for a change in a state of the storage system devices; and
- in response to the change, modifying the logical map.

The Examiner conceded that "Blumenau does not explicitly disclose a graphical user interface displaying a logical map of the data access drivers and transfer robotics." 04/17/2009 Office Action at 4. It is noted that the Examiner has not exactly paraphrased the language of claim 12 in the foregoing statement. Claim 12 actually recites "generating, by the interface manager, a logical map identifying at least some of the storage system devices based on the device information."

In view of this concession, the Examiner cited Dimitroff as purportedly disclosing claimed subject matter missing from Blumenau. *Id.* Specifically, the Examiner cited the following passages of Dimitroff: column 3, lines 34-54; column 4, lines 6-67; column 5, lines 1-60. As explained by Dimitroff, a standardized shareability scheme is used for establishing a shared level for each of multiple storage units located in a computer system. Dimitroff, 1:39-42. Each storage unit includes at least one parametric from a group of parametrics used in classifying the shared level of the storage unit. *Id.*, 1:44-48. Hosts using the standardized shared levels are able to identify a shareability characteristic of each storage unit. *Id.*, 1:48-50. The parametrics of Dimitroff are classified into a security parametric, an access parametric, an availability parametric, an ownership parametric, and a management parametric. *Id.*, 3:4-8. The column 3 passage of Dimitroff cited by the Examiner describes the access parametric and the availability parametric. The access parametric includes different access levels, and the availability parametric indicates the conditions under which the storage unit are available to be accessed. *Id.*, 3:33-58.

The column 4 passage of Dimitroff cited by the Examiner refers to different shared levels, where the different shared levels include various different parametrics. The cited column 5 passage of Dimitroff further describes the shared levels.

Contrary to the assertion by the Examiner, the parametrics described in Dimitroff (including the security and access parametrics) do not "perform the same action as a logical map." *See id.* at 4. Even more specifically, there is no hint by Dimitroff that these parametrics are used to generate a logical map identifying at least some of the storage system devices.

As specifically explained by Dimitroff, the parametrics are used in classifying the shared level of a particular storage unit. Dimitroff, 1:44-48. As further explained by Dimitroff,

establishing the standardized shared level for each storage unit allows the specific capabilities of a corresponding storage unit to be determined. *Id.*, 1:25-29. Enabling a host to use the standardized shared levels to identify a shareability characteristic of each storage unit, as discussed in Dimitroff, is different from generating a logical map identifying at least some of the storage system devices based on received device information from a plurality of interface controllers operatively associated with storage system devices in a storage system.

In view of the incorrect assertion by the Examiner regarding the teachings of Dimitroff, it is respectfully submitted that the obviousness rejection is defective for at least this reason, since the hypothetical combination of the references would not have led to the claimed subject matter.

In view of the foregoing, it is respectfully submitted that the obviousness rejection of claim 12 and its dependent claims is defective.

Reversal of the final rejection of the above claims is respectfully requested.

2. Claim 13.

Claim 13 depends from claim 12, and is therefore allowable for at least the same reasons as claim 12. Moreover, claim 13 recites aggregating configuration information from each of the storage system devices for the logical map.

The rejection of claim 13 was grouped with the rejection of claim 12, and the Examiner did not explain how Blumenau, Dimitroff, and Suzuki provides any teaching or hint of the subject matter of claim 13. There is nothing in these references to disclose or hint at aggregating configuration information from each of the storage system devices for the logical map that is generated by the interface manager.

Therefore, the obviousness rejection of claim 13 is further defective for the foregoing reason.

Reversal of the final rejection of the above claim is respectfully requested.

3. Claims 25, 28, 32, 36.

Independent claim 25 is also non-obvious over Blumenau, Dimitroff and Suzuki. Specifically, the hypothetical combination of references fails to disclose the following element of claim 25:

> receive device information relating to the storage system devices from the controllers, wherein the received device information includes at least one of numbers and types of the storage system devices operatively associated with the controllers, and capacities of the storage system devices, and
>
> generate at least one logical map based on the received device information.

The Examiner conceded that Blumenau "does not explicitly disclose a graphical user interface displaying a logical map of the data access drivers and transfer robotics." 04/17/2009 Office Action at 6-7. The above concession inaccurately paraphrases the language of claim 25. It is believed that the Examiner intended to state that Blumenau fails to disclose generating at least one logical map based on received device information that includes at least one of numbers and types of the storage system devices operatively associated with the controllers, and capacities of the storage system devices.

As purportedly disclosing the claimed subject matter conceded by the Examiner to be missing from Blumenau, the Examiner cited Dimitroff. *Id.* at 7. The Examiner stated that "Dimitroff clearly discloses wherein the received device information includes at least one of numbers and types of storage system devices," citing specifically to column 2, line 35 – column 3, line 14. This cited passage of Dimitroff refers to a storage system that includes more than one type of storage unit located within a computer system. Dimitroff, 2:46-51. The cited passage also notes that the different types of storage units can have the same parametrics or shared levels. *Id.*, 2:66-3:3. However, nowhere in this passage of Dimitroff is there any hint that at least one of

numbers and types of the storage system devices, and capacities of the storage system devices, can be used for generating a logical map, as recited in claim 25.

The rejection also referred to column 5, lines 45-67, of Dimitroff. The cited column 5 passage refers to intelligent controllers using a protocol to communicate with an attached storage unit. The cited column 5 passage of Dimitroff also notes that the intelligent controller includes time availability, capacity availability, and performance availability capabilities. However, nowhere is there any hint here that at least one of numbers and types of the storage system devices, and capacities of the storage system devices, can be used for generating a logical map, as recited in claim 25.

Moreover, although the rejection of claim 25 is purportedly over Blumenau, Dimitroff, and Suzuki, the Examiner did not provide any explanation regarding how Suzuki applies to claim 25. It is clear that the hypothetical combination of Blumenau, Dimitroff, and Suzuki would not have disclosed or hinted at the claimed subject matter.

Moreover, in view of the fact that the references do not provide any hint of generating a logical map based on received device information that includes at least one of numbers and types of storage system devices operatively associated with controllers, and capacities of the storage system devices, it is respectfully submitted a person of ordinary skill in the art would not have been prompted to combine the teachings of Blumenau, Dimitroff, and Suzuki to achieve the claimed subject matter.

Therefore, the obviousness rejection of claim 25 and its dependent claims is in error.

Reversal of the final rejection of the above claims is respectfully requested.

4. Claim 33.

Claim 33 depends from claim 25, and is therefore allowable for at least the same reasons as corresponding claim 25. Moreover, with respect to the rejection of claim 33, the Examiner referred to the rejection of claim 12. 04/17/2009 Office Action at 8.

For reasons stated above with respect to claim 12, claim 33 is further allowable over Blumenau, Dimitroff, and Suzuki.

Reversal of the final rejection of the above claim is respectfully requested.

5. Claim 39.

Claim 39, which depends from claim 12, is allowable for at least the same reasons as claim 12. Moreover, claim 39 further recites that the received device information includes at least one of numbers and types of the storage system devices operatively associated with the interface controllers, and capacities of the storage system devices. For reasons similar to those stated above with respect to claim 25, claim 39 is further allowable over Blumenau, Dimitroff, and Suzuki.

Reversal of the final rejection of the above claim is respectfully requested.

6. Claim 40.

Claim 40 depends from claim 39, and is therefore allowable for at least the same reasons as claim 39. Moreover, claim 40 further recites that the received device information further includes connection types of the storage system devices, and permissions associated with the storage system devices. With respect to claim 40, the Examiner cited the following passages of Dimitroff: column 2, line 35 – column 3, lines 1-14; column 5, lines 45-67. Although reference is made to different types of storage units in the cited passage in columns 2 and 3, there is no hint

here of **connection types of storage system devices, where the connection types of the storage system devices are part of the received device information from which the logical map is generated.**

Moreover, the cited column 5 passage refers to intelligent controllers using a protocol to communicate with an attached storage unit. The cited column 5 passage of Dimitroff also notes that the intelligent controller includes time availability, capacity availability, and performance availability capabilities. There is absolutely no hint in this passage of Dimitroff of using connection types of storage system devices and permissions associated with storage system devices to generate a logical map, as recited in claim 40.

Claim 40 is further allowable over the cited references for the foregoing reason.

Reversal of the final rejection of the above claim is respectfully requested.

7. Claim 41.

Claim 41 depends from claim 25, and is therefore allowable for at least the same reasons as claim 25. Moreover, claim 41 is also further allowable for similar reasons as stated above with respect to claim 40.

Reversal of the final rejection of the above claim is respectfully requested.

B. Claims 38 and 42 were rejected under 35 U.S.C. § 103(a) as unpatentable over Blumenau, Dimitroff and further in view of Suzuki and (AAPA) Applicant's Admission of Prior Art.

1. Claim 42.

In view of the allowability of base claim 25 over Blumenau, Dimitroff, and Suzuki, it is respectfully submitted that the obviousness rejection of dependent claim 42 over Blumenau, Dimitroff, Suzuki and AAPA has also been overcome.

The Examiner conceded that Blumenau, Dimitroff, and Suzuki fail to disclose that the state of the storage system devices includes one or more of: a storage system device being taken offline, or a storage system device being re-cabled. Note that the phrase "state of the storage system devices" is used in the context of the following elements of base claim 33:

wherein the at least one control element is configured to further:

monitor for a change in a state of the storage system devices; and

in response to the change, modify the logical map.

There is absolutely no hint whatsoever of a control element monitoring for a change in a state of the storage system devices that includes one or more of a storage system device being taken offline, or a storage system device being re-cabled, in Blumenau, Dimitroff, and Suzuki. The reliance on AAPA as providing purported support for the obviousness rejection is misplaced.

The background of the present application notes that if a physical layout changes (*e.g.*, a drive is taken offline), the network administrator has to **manually** update the logical map. Specification, page 2, ¶ [0004]. Thus, the AAPA would have led a person of ordinary skill in the art away from use of a control element configured to monitor for such change in the state of the storage system devices, and in response to the change, modify the at least one logical map.

In view of the foregoing, the obviousness rejection of claim 42 is further defective for the foregoing reason.

Reversal of the final rejection of the above claim is respectfully requested.

2. Claim 38.

In view of the allowability of base claim 12 over Blumenau, Dimitroff, and Suzuki, the obviousness rejection of dependent claim 38 over Blumenau, Dimitroff, Suzuki, and AAPA is defective.

Reversal of the final rejection of the above claims is respectfully requested.

C. Claims 18, 21, 22, 24, 27-31, and 37 were rejected under 35 U.S.C. § 103(a) as unpatentable over Blumenau, Dimitroff and further in view of Yung (U.S. Patent Publication No. 2004/0032430).

1. Claim 18.

Claim 18 is a dependent claim of independent claim 12. Claim 18 was rejected as purportedly obvious over Blumenau, Dimitroff and Yung. However, it is noted that the Examiner had relied upon Suzuki as providing a teaching of the "monitoring" and "modifying" elements of claim 12. The Examiner did not provide any explanation regarding how Yung discloses the "monitoring" and "modifying" elements of claim 18 (which incorporates the subject matter of base claim 12). In view of the concession that Blumenau and Dimitroff fail to disclose these elements, it is clear that the rejection of claim 18 is erroneous.

Reversal of the final rejection of the above claim is respectfully requested.

2. Claims 21, 22, 24, 37.

Independent claim 21 was rejected as being obvious over Blumenau, Dimitroff, and Yung.

It is respectfully submitted that no reason existed that would have prompted a person of ordinary skill in the art to combine the teachings of Blumenau, Dimitroff, and Yung. *KSR International Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1741, 82 U.S.P.Q.2d 1385 (2007). While

Dimitroff is related to defining standardized share levels for different storage units, and Blumenau is related to managing the availability and assignment of data in a storage system, Yung is related to providing a user interface "for relatively large biological laboratories that have many instruments of different types." Yung, Abstract. Since the teachings of Dimitroff, Blumenau, and Yung are directed to very different applications, it is respectfully submitted that a person of ordinary skill in the art would not have been prompted to combine the teachings of Dimitroff, Blumenau, and Yung to achieve the claimed invention.

The Examiner argued that "Yung seeks to address the problem of a plurality of interface controllers operatively associated with the data access drives and transfer robotics." 04/17/2009 Office Action at 11. The Examiner pointed specifically to the following passages of Yung: ¶¶ [0008], [0011]-[0014], [0037]. The cited passage in ¶ [0008] refers to a centralized user interface for a given instrument to allow a user to monitor and control the instrument, and an interface application that uses information about the instruments to generate an instrument management graphic user interface that lists instruments available for use.

The passages of ¶¶ [0011]-[0014] of Yung refer to biological processing instruments that include a sample storage device, a sample transferring robotics device, and other devices. Yung is directed to generating a centralized user interface for a biological laboratory having biological processing instruments to process biological samples. The interface can receive a user request for one or more biological processing instruments, or receiving a request for one or more biological samples. *Id.*, ¶¶ [0013], [0014].

Paragraph [0037] of Yung describes a user interface system that provides means for a user to interact with instruments and applications, and to facilitate monitoring and controlling of instruments/applications in a user-friendly graphical environment.

However, these teachings of Yung are not related to an automated storage system that includes data access drives and transfer robotics, where the data access drives are to access data on data storage media, and where the transfer robotics are to transfer data storage media in the automated storage system. Nor does Yung relate to generating a logical map used by hosts to allow access of the data access drives (to access data on data storage media) and the transfer robotics (to transfer data storage media in the automated storage system).

Thus, it is clear that a person of ordinary skill in the art would not have been prompted to combine the teachings of Dimitroff, Blumenau, and Yung.

Moreover, the hypothetical combination of the references does not disclose or hint at the following feature of claim 21: the interface manager is to generate a logical map of the automated storage system based on aggregating configuration information for the data access drives and transfer robotics, wherein the logical map is used by hosts to allow access of the data access drives and the transfer robotics by the hosts. Although Yung discloses instruments that include sample storage devices and sample transfer robotics, the "sample" refers to a biological sample for biological analysis. Thus, Yung clearly does not contemplate aggregating configuration information for data access drives (that access data on storage media) and transfer robotics (that transfer data storage media in a storage system).

Therefore, even if Blumenau, Dimitroff, and Yung could be hypothetically combined, the hypothetical combination would not have led to the claimed subject matter. Therefore, claim 21 and its dependent claims are non-obvious over the cited references.

Reversal of the final rejection of the above claims is respectfully requested.

3. Claims 27-31.

Claims 27-31 depend from independent claim 25, which was rejected as obvious over Blumenau, Dimitroff, and **Suzuki**. Yet, the rejection of dependent claims 27-31 is over Blumenau, Dimitroff, and Yung. Therefore, on its face, it is clear that the obviousness rejection of claims 27-31 is defective.

Reversal of the final rejection of the above claims is respectfully requested.

CONCLUSION

In view of the foregoing, reversal of all final rejections and allowance of all pending claims is respectfully requested.

Respectfully submitted,

Date: September 16, 2009

/Dan C. Hu/

Dan C. Hu
Registration No. 40,025
TROP, PRUNER & HU, P.C.
1616 South Voss Road, Suite 750
Houston, TX 77057-2631
Telephone: (713) 468-8880
Facsimile: (713) 468-8883

VIII. APPENDIX OF APPEALED CLAIMS

The claims on appeal are:

12. A method comprising:

receiving, by an interface manager in a storage system, device information from a plurality of interface controllers operatively associated with storage system devices in the storage system, the device information relating to the storage system devices;

generating, by the interface manager, a logical map identifying at least some of the storage system devices based on the device information;

assigning, by the interface manager, the logical map to at least one host separate from the interface manager to enable access by the at least one host of the storage system devices;

monitoring for a change in a state of the storage system devices; and

in response to the change, modifying the logical map.

13. The method of claim 12 further comprising aggregating configuration information from each of the storage system devices for the logical map.

14. The method of claim 12 further comprising propagating management commands to each of the plurality of interface controllers.

15. The method of claim 12 further comprising routing transactions from the at least one host to at least one of the interface controllers.

16. The method of claim 12 further comprising formatting transactions from the at least one host for a designated interface controller.

17. The method of claim 12 further comprising scheduling access by the at least one host to the storage system devices.

18. The method of claim 12 further comprising identifying the storage system devices in the logical map as logical units (LUNs).

21. A storage network comprising:

an automated storage system including data access drives and transfer robotics, wherein the data access drives are to access data on data storage media, and wherein the transfer robotics are to transfer data storage media in the automated storage system;

a plurality of interface controllers operatively associated with the data access drives and transfer robotics;

an interface manager separate from the data access drives, the transfer robotics, and the interface controllers, the interface manager communicatively coupled to each of the plurality of interface controllers, the interface manager to generate a logical map of the automated storage system based on aggregating configuration information for the data access drives and transfer robotics, wherein the logical map is used by hosts to allow access of the data access drives and the transfer robotics by the hosts; and

a pipeline provided as computer readable program code in computer-readable storage at the interface manager, the pipeline including:

a command router to format transactions for the interface controllers;

a management application program interface (API) to generate management commands for the plurality of interface controllers; and

a device manager to communicate with the plurality of interface controllers.

22. The storage network of claim 21 wherein the management API generates at least the following management commands: reboot, interrogate, and status.

24. The storage network of claim 21 wherein the management API schedules access to the data access drives and transfer robotics.

25. An interface manager for use in a storage system, comprising:

at least a first port to communicate with controllers operatively associated with storage system devices of the storage system;

at least one network port to communicate with a host separate from the interface manager and external to the storage system; and

at least one control element to:

receive device information relating to the storage system devices from the controllers, wherein the received device information includes at least one of numbers and types of the storage system devices operatively associated with the controllers, and capacities of the storage system devices,

generate at least one logical map based on the received device information, and

assign the at least one logical map to the host to allow the host to access one or more of the storage system devices.

27. The interface manager of claim 25, wherein the at least one control element includes a pipeline to route management commands to the controllers.

28. The interface manager of claim 25, wherein the at least one control element includes a command router to format transactions for the controllers.

29. The interface manager of claim 25, wherein the at least one control element includes a management application program interface (API) to generate management commands for the controllers.

30. The interface manager of claim 29, wherein the management API schedules access to data access drives and transfer robotics.

31. The interface manager of claim 25, wherein the storage system devices include data access drives and transfer robotics, wherein the data access drives are to access data on data storage media, and wherein the transfer robotics are to transfer data storage media in the storage system, and wherein the data access drives and transfer robotics are identified by a fibre channel port and logical units (LUNs) in the logical map.

32. The interface manager of claim 25, further comprising a user interface to allow access of the at least one logical map to enable administrator modification of the at least one logical map.

33. The interface manager of claim 25, wherein the at least one control element is configured to further:

monitor for a change in a state of the storage system devices; and

in response to the change, modify the at least one logical map.

35. The method of claim 12, wherein the logical map identifies storage system devices that are accessible by the at least one host.

36. The interface manager of claim 25, wherein the logical map identifies plural storage system devices that are accessible by the host.

37. The storage network of claim 21, wherein the logical map identifies data access drives in the automated storage system accessible by the hosts.

38. The method of claim 12, wherein the state of the storage system devices includes one or more of: a storage system device being taken offline, or a storage system device being re-cabled.

39. The method of claim 12, wherein the received device information includes at least one of numbers and types of the storage system devices operatively associated with the interface controllers, and capacities of the storage system devices.

40. The method of claim 39, wherein the received device information further includes connection types of the storage system devices, and permissions associated with the storage system devices.

41. The interface manager of claim 25, wherein the received device information further includes connection types of the storage system devices, and permissions associated with the storage system devices.

42. The interface manager of claim 33, wherein the state of the storage system devices includes one or more of: a storage system device being taken offline, or a storage system device being re-cabled.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.